
Review

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MOISTURE AND FARMING IN SOUTH AFRICA. By W. R. THOMPSON. (South African Agricultural Series, Vol. 14.) [Johannesburg] *South Africa: Central News Agency [London Agents: Gordon and Gotch]*, 1936. $9 \times 5\frac{1}{2}$ inches; 260 pages; illustrations and maps. 21s (postage 6d extra)

To peoples owing so much to the traditions of farming in Western Europe, the sub-humid to arid lands of the Union have presented many problems. Among these none have been more urgent than those having their roots in the fickleness and violence of the rainfall. Not unnaturally the public have adopted an attitude of pessimism believing in a progressive deterioration of the climate and at the same time showing a readiness to blame various causes without critical inquiry.

The larger part of this work examines the problem of drought and its causation in the light of written records for the earlier, and of rainfall data, for the later years. Written testimony tends to show that drought is nothing new in South Africa, while a careful analysis of rainfall since c. 1880—using moving averages and residual mass curves—justifies the main conclusion that though “over the last 40–50 years the annual rainfall in certain parts of South Africa shows a more or less definite though irregular downward trend until 1933,” there is “no proof of any permanent diminution.” Nor do the data support the prevalent belief that the rainfall is becoming more violent in its nature. In short, a good case is made for the view that here, as elsewhere in countries of barely sufficient rainfall, misuse of the land by overstocking and grazing, unrestricted burning, and, in some cases, a mal-adjusted agriculture, have created a position for which here, as elsewhere, nature has been blamed.

Disproof of popular theories on the causation of drought conditions is less rigorous, but such ideas as the adverse influence of exotic trees, and the effectiveness of a rise of the land, are treated critically and dispassionately; and in a similar way the evidence is marshalled to condemn the hare-brained, so-called Schwarz scheme for the reclamation of the Kalahari.

This rational treatment of the drought problem is an important contribution, as it must serve to clarify local opinion; but for many the real interest of the book will lie in the results of Mr. Thompson's experiments upon water economy in plots under typical South African farming practices. Transpiration, evaporation, run-off, leaching, and soil erosion have been measured, and if, as he stresses, some measurements must be treated with reserve, no doubt remains on such major issues as the dominance of transpiration and evaporation in the dissipation of moisture in maize cultivation; the high degree of run-off and the serious soil loss from moderately sloping bare cultivated ground; and the significantly greater soil loss from burned than from unburned veldt. In a country where “in many respects agricultural practices are based on principles established abroad”—in moister lands—this quantitative study of water economy is of first-rate importance. It is to be hoped that it, and continued work in the vigorous department of Pretoria University from which it comes, will do much to give the South African farmer a background to his problems based on principles established in his own environment.

It is regrettable that such important work should be so unattractively set forth. The chapters seem to be designed as self-contained essays, repetition is rife, and the consequent tedium is not relieved by the frequent “chapter summaries.”

H. A. M.

SOUTH AFRICAN CINDERELLA: a trek through ex-German South-west Africa. By REX HARDINGE. London: *Herbert Jenkins*, 1937. $8\frac{1}{2} \times 5\frac{1}{2}$ inches; 348 pages; illustrations and sketch-maps. 15s

Mr. Hardinge has an affection for the remote places of Africa, and no discomfort or danger does more than stimulate him to further endeavour. His

Cinderella is the desert and arid grasslands of South-West Africa, formerly held by Germany and now virtually a fifth province of the Union of South Africa. Although, as he says, it has been described as a land fit only for Bushmen and goats, the author succeeds in writing a narrative as colourful as it is veracious. Setting out very light-heartedly from Cape Town on an overloaded and already much-worn bicycle, he traversed both the dry Western Cape Province and the even drier "South-West" from south to north. His conveyance was not always the best possible for his purpose, but in the main it served his need triumphantly. The narrative is lessened in value by the absence of a satisfactory map, and the frontispiece sketch of the route is altogether too fragmentary to be of much assistance to those English readers who do not know South Africa. Mr. Hardinge however almost renders a map superfluous by the employment of a most graphic style. One of the principal motives of the trek was to study the conditions of life of the various impoverished communities which make up the society of "South-West", such as the Bushmen, Hottentots, Rehoboth Bastards, and Hereros, and to discover the attitude of these native groups to the possibility of a return of the territory to German sovereignty. Mr. Hardinge is particularly severe on the Germans, but he would do well not to forget the condition of the Bantu in those parts of Africa where German influence has never penetrated.

W. F.

MAGNETIC DECLINATION IN SOUTH AFRICA (1936), published in connection with the Isogonic Magnetic Map of South Africa, south of latitude 18° S. for the approximate epoch April 1936. By A. D. LEWIS. Pretoria: Government Printer, 1937. $9\frac{1}{2} \times 6$ inches; 20 pages; charts and map. 2s 6d

This small pamphlet, including nineteen pages of text, explains the two charts which accompany it. The main chart gives lines of equal magnetic declination (or isogonic lines) over most of South Africa south of latitude 18° S. The scale is 79 miles to the inch, so that a square degree measures roughly $\frac{7}{8} \times \frac{3}{4}$ inch: Boune's projection is used. The isogonic lines are drawn at 1° intervals, and range from 10° W. in the north-east, near Beira and Salisbury, to 24° W., near Capetown. The chart is the first magnetic map of this region to be published under Government authority, and is based mainly on official data.

Such a map was badly needed, as the secular variation had rendered the pioneer maps due to Beattie out of date. Beattie's work was done during the years 1900-15, after which little magnetic observation was undertaken until Grindley reoccupied a number of selected stations, under the auspices of the Carnegie Institution of Washington and the University of Capetown. The secular variation over South Africa is not at all uniform, and its changes with time appear to be considerable and are not at all properly known. The present isogonic chart includes a small supplementary isoporic chart (*i.e.* a chart showing lines of equal annual change of declination), but the other chart which accompanies the pamphlet, and contains five tentative isoporic charts for different epochs between 1913 and 1937, emphasizes the present uncertainty of our knowledge of the secular variation in South Africa.

Almost the whole region covered by the isogonic maps is subject to local magnetic abnormalities, and the isogonic lines represent a considerable smoothing out of the irregularities, as is both desirable and necessary. A huge area near the centre of the map is specially disturbed, declinations ranging from zero to 30° W. being found within distances of a few hundred yards in some parts of this region; this is due, according to Du Toit, to an underlying iron-ore deposit, one of the greatest in the world. In view of these abnormalities of the